

## II. AMENDMENTS TO THE CLAIMS:

*This listing of claims will replace all prior versions, and listings, of claims in the application.*

### **Listing of Claims:**

Claims 1-37 (Canceled)

38. (Previously Presented)

A method of cryopreserving sex-selected sperm cells, comprising:

- a. obtaining sperm cells from a species of a male mammal;
- b. sorting said sperm cells, without the presence of protective compounds in seminal plasma, and based upon sex-type to create a collection of sex-selected sperm cells;
- c. cooling said sex-selected sperm cells;
- d. suspending said sex-selected sperm cells in an extender to at least about 5 million per milliliter of extender to at least about 10 million per milliliter of extender, and;
- e. freezing said sex-selected sperm cells in said extender.

39. (Previously Presented)

A method of cryopreserving sex-selected sperm cells as described in claim 38, wherein said sperm cells from said species of said male mammal are selected from the group consisting of bovine sperm cells and equine sperm cells.

40. (Withdrawn)

A method of cryopreserving sperm cells as described in claim 39, and further comprising the step of isolating a number of bovine sperm cells between about 300,000 and about 3,000,000.

41. (Withdrawn)  
A method of cryopreserving sperm cells as described in claim 39, and further comprising the step of isolating a number of bovine sperm cells of no more than about 1,000,000.
42. (Previously Presented)  
A method of cryopreserving sex-selected sperm cells as described in claim 38, wherein said sperm cells from said species of said male mammal comprise equine sperm cells.
43. (Currently amended)  
A method of cryopreserving sex-selected sperm cells as described in claim 42, and further comprising the step of isolating a number of equine sperm cells between about 1,000,000 ~~million~~ and about 25,000,000.
44. (Previously Presented)  
A method of cryopreserving sex-selected sperm cells as described in claim 42, and further comprising the step of isolating a number of equine sperm cells of no more than about 5,000,000.
45. (Previously Presented)  
A method of cryopreserving sex-selected sperm cells as described in claim 38, wherein said step of cooling sex-selected sperm cells comprises reducing the temperature of said sex- selected sperm cells to about 5°Celsius.
46. (Previously Presented)  
A method of cryopreserving sex-selected sperm cells as described in claim 45, wherein said step of reducing the temperature of said sex-selected sperm cells comprises reducing the temperature of said sex-selected sperm cells for a period of about 60 minutes to about 240 minutes.
47. (Previously Presented)  
A method of cryopreserving sex-selected sperm cells as described in claim 38, wherein

said extender further comprises a component which maintains osmolality and buffers pH.

48. (Previously Presented)

A method of cryopreserving sex-selected sperm cells as described in claim 47, wherein said component which maintains osmolality and buffers pH is selected from the group consisting of a buffer comprising a salt, a buffer containing a carbohydrate, and any combination thereof.

49. (Previously Presented)

A method of cryopreserving sex-selected sperm cells as described in claim 47, wherein said component which maintains osmolality and buffers pH is selected from the group consisting of sodium citrate, Tris[hydroxymethyl]aminomethane, 200mM Tris[hydroxymethyl]aminomethane, 175 mM to 225mM Tris[hydroxymethyl]aminomethane, 200 mM Tris[hydroxymethyl]aminomethane/65mM citric acid monohydrate, 175 mM to 225mM Tris[hydroxymethyl]aminomethane/50mM to 70mM citric acid monohydrate, N-Tris [hydroxymethyl]methyl-2-aminoethanesulfonic acid, 200 mM Tris[hydroxymethyl]methyl-2-aminoethanesulfonic acid, 175 mM to 225 mM Tris[hydroxymethyl]methyl-2-aminoethanesulfonic acid, 200 mM Tris[hydroxymethyl]methyl-2-aminoethanesulfonic acid/65 mM citric acid monohydrate, 175 mM to 225 mM Tris[hydroxymethyl]methyl-2-aminoethanesulfonic acid/50mM to 70 mM citric acid monohydrate, monosodium glutamate, milk, HEPES buffered medium, and any combination thereof.

50. (Previously Presented)

A method of cryopreserving sex-selected sperm cells as described in claim 47, 48, or 49, wherein said extender has a pH in the range of about 6.5 to about 7.5.

51. (Previously Presented)

A method of cryopreserving sex-selected sperm cells as described in claim 50, wherein said extender further comprises a cold shock protectant.

52. (Previously Presented)

A method of cryopreserving sex-selected sperm cells as described in claim 51, wherein said cold shock protectant is selected from the group consisting of egg yolk, 20% egg yolk, 15% to 25% egg yolk, an egg yolk extract, milk, a milk extract, casein, albumin, lecithin, and any combination thereof.

53. (Previously Presented)

A method of cryopreserving sex-selected sperm cells as described in claim 51, wherein said extender further comprises an energy source.

54. (Previously Presented)

A method of cryopreserving sex-selected sperm cells as described in claim 53, wherein said energy source is selected from the group consisting of a saccharide, glucose, fructose, 56 mM fructose, 45mM to 60mM fructose, mannose, and any combination thereof.

55. (Withdrawn)

A method of cryopreserving sex-selected sperm cells as described in claim 53, wherein said extender further comprises an antibiotic.

56. (Withdrawn)

A method of cryopreserving sex-selected sperm cells as described in claim 55, wherein said antibiotic is selected from the group consisting of tylosin, gentamicin, lincomycin, linco-spectin, spectinomycin, penicillin, streptomycin, and any combination thereof.

57. (Previously Presented)

A method of cryopreserving sex-selected sperm cells as described in claim 47, 51, 53, or 55, wherein said extender further comprises a cryoprotectant.

58. (Previously Presented)

A method of cryopreserving sex-selected sperm cells as described in claim 57, wherein said cryoprotectant is selected from the group consisting of disaccharides, trisaccharides, and any combination thereof.

59. (Previously Presented)

A method of cryopreserving sex-selected sperm cells as described in claim 57, wherein said cryoprotectant is selected from the group consisting of glycerol, 6% glycerol, between 5% to 7% glycerol, dimethyl sulfoxide, ethylene glycol, propylene glycol, and any combination thereof.

60. (Withdrawn)

A method of cryopreserving sex-selected sperm cells as described in claim 38, wherein the extender in which said sex-selected sperm cells are suspended comprises glycerol, sodium citrate, Tris[hydroxymethyl]aminomethane, egg yolk, fructose, and one or more antibiotics.

61. (Withdrawn)

A method of cryopreserving sex-selected sperm cells as described in claim 38, wherein the extender in which said sex-selected sperm cells are suspended comprises glycerol, sodium citrate, egg yolk, and one or more antibiotics.

62. (Withdrawn)

A method of cryopreserving sex-selected sperm cells as described in claim 38, wherein the extender in which said sex-selected sperm cells are suspended comprises glycerol, egg yolk, milk, fructose, and one or more antibiotics.

63. (Currently amended)

A method of cryopreserving sex-selected sperm cells as described in claim 38, further comprising ~~the step~~ a step of equilibrating said sex-selected sperm cells suspended in said extender to a cooler, non-freezing temperature for a period of time prior to said freezing

step for a period of about 1 hour to about 18 hours.

64. (Currently amended)

A method of cryopreserving sex-selected sperm cells as described in claim 59, further comprising ~~the step~~ a step of equilibrating said sex-selected sperm cells suspended in said extender to a cooler, non-freezing temperature for a period of time prior to said freezing step over a period of not greater than 6 hours.

65. (Withdrawn)

A frozen sex-selected sperm sample in accordance with the method of claim 38.

66. (Canceled)

67. (Withdrawn)

A method of cryopreserving sperm cells as described in claim 38, wherein said step of freezing said sex-selected sperm cells in said extender comprises freezing a number of bovine sperm cells between about 300,000 and about 5,000,000.